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*Original Article*

# The Effect of Improving Teaching Skills on Graduate Quality at Makassar Shipping Science Polytechnic

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***Abstract*** *- The realization of a quality society is the responsibility of education, especially in preparing students who are resilient, creative, independent and professional. To meet these demands, the competence of educators is very important to improve the quality of graduates so that they can work professionally and competitively; the competencies measured are pedagogical competence, personal competence, social competence and professional competence. This study aimed to analyze the effect of increasing the competence of teaching staff on the quality of graduates of Transportation Human Resources at Makassar Polytechnic of Shipping Science 'PIP Makassar'. This study used simple regression analysis on the sample to find the effect of lecturer competence on the quality of graduates. The results of this study indicate that there is an influence between the competencies of teaching staff on the quality of graduates of the Makassar Polytechnic of Shipping Science.*

***Keywords*** *- Lecturer competence, Graduate quality, Vocational, PIP Makassar.*

## 1. Introduction

One of the most crucial components of the educational system is vocational education, which is based on the demands of businesses and the labor market [1]. Because it connects young people's talents with employer wants, vocational education is thought to be advantageous for the distribution of young people in the labor market [2,3]. Work experience and competencies should be the main topics of study in vocational education [4,5]. Competencies are based on what employers need from employees and what students are capable of. A worker must possess the element of competence, which is defined as an activity, behavior, or outcome that must be displayed by an employee in their work environment [6]. Among the vocational education programs that PIP Makassar offers are the Nautical, Technics, and KALK study programs. These programs are designed to educate and train transportation maritime officials. PIP Makassar contributes to the enhancement of lecturers' and trainers' competency as an educational establishment. In order to improve graduates' competence, it is essential for the input and training process[7, 8]. Competence is an integrated part of the knowledge, skills, and attitudes used to perform a job or carry out a task. [9, 10, 11]. Lecturers' competencies are the foundation for the creation of new knowledge and values that benefit universities and students, information and knowledge, help them acquire and improve skills and develop their competencies [12]. In education, the concept of competence plays a "nodal" role, as individual competencies can combine the intellectual and practical components of education [10, 11]. Pedagogic competence, personality competence, social competence, and professional competence are the four characteristics that teachers and lecturers possess. These qualities are complementary to one another [13, 14]. The purpose of this study is to investigate the relationship between rising competency and the caliber of graduates in transportation human resources at Makassar Polytechnic of Shipping Science.

## 2. Methods

This study uses a questionnaire with the following scores: Score 1 = Very bad, Score 2 = Not good, Score 3 = Ordinary, Score 4 = Good, and Score 5 = Very good. The sample selection used a purposive sampling technique with a total of 159 respondents consisting of 37 functional and RPL lecturers, 122 alumni and 30 cadets.

### *2.1. Data Analysis Technique*

Descriptive statistics describe or describe data regarding pedagogical competence, personality competence, professional competence and social competence, while inferential statistics are used to determine the results of samples that describe the entire population. Simple regression analysis is used to find the effect between the variable competence of teaching staff (X) and the quality of graduates (Y) using the following formula[15]

$$y_i = \alpha + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \varepsilon_i$$

Description:
y = Graduate Quality
x = Competency Improvement
ε = Stochastic disturbance variable
α & β = Regression parameters

With the following estimation function [16]

$$\hat{Y} = a + bx$$

Description:
b = Regression coefficient
a = Constant number

### *2.2. Proof of Research Hypothesis*

The simultaneous impact of X and Y (F test). Ha is acceptable if the estimated F coefficient is significant at a level of less than 5% or if the F significance value < α (0.05). This indicates that the quality of graduates is significantly influenced positively by the competency of teaching personnel, meanwhile, in case. Ho is rejected if the estimated F coefficient is significant at a level greater than 5% or if the F significance value is greater than α (0.05). This indicates that there is no discernible positive relationship between the caliber of graduates and the teaching staff's competency. The data normality test in this study used the Kolmogorov Smirnov test with the hypothesis that: Ho: the data comes from a normally distributed population *H1*: the data does not come from a normally distributed population. Researchers use the help of SPSS version 25; if the significance value is 0.05, then *HO* is accepted, and if the significance value is 0.05, then *HO* is rejected.[17].

## 3. Discussion

### *3.1. Academic Qualifications and Competencies of Lecturers*

Thirty-seven functional lecturer educators from PIP Makassar were used as respondents in this study. Their descriptions of their academic backgrounds and competencies included 29 respondents with S2 education level qualifications, 5 respondents with S1 education level qualifications, and 3 respondents with PhD education level qualifications. Functional lecturer educators are comprised of 23 respondents who hold ANT I / ATT I competency certification, 8 respondents who hold ANT II / ATT II competency certification, and 6 respondents who hold other competency certificates. These respondents represent the professional competence that functional lecturer educators possess. The frequency distribution of the four research sub-variables consisting of lecturer pedagogics competence, lecturer professional competence, lecturer personality competence, and lecturer social competence is as follows.

#### *3.1.1. Pedagogical Competence of Lecturers*

Pedagogical competence is the ability of lecturers to manage learning [18]. These competencies include understanding students, designing and implementing learning, evaluating and learning outcomes and developing students to actualize their various potentials. The frequency distribution of the assessment of the pedagogical competence of lecturers is the average choice of respondents' answers in each statement item around 49.7%. The percentage of respondents' answers is in a good category, in accordance with the standard descriptive analysis criteria for percentages between 40.20% - 70.50% good criteria [19] can be seen in Table 1.

#### *3.1.2. Professional Competence of Lecturers*

Professional competence is the ability of lecturers to master subject matter deeply and extensively so as to be able to guide students to meet the established competency standards [18]. The professional competence of lecturers is the breadth of academic insight and depth of knowledge of lecturers on the scientific material they pursue, which includes mastery of broad and deep material, concepts, structures, and methods of science/technology/art that overshadow/coherent with teaching material, teaching material in the school curriculum, concept relationships between related subjects, application of scientific concepts in everyday life, and professional competition in a global context while preserving values and culture[20]. The frequency distribution of the professional competence of lecturers is the average choice of respondents' answers in each statement item, around 65.6%. The percentage of respondents' answers is in a good category, in accordance with the standard descriptive analysis criteria for percentages between 40.20% - 70.50% good criteria [19] can be seen in Table 2.

#### *3.1.3. Lecturer Personality Competence*

A lecturer's personality competence is a personal competence or ability that reflects personality, stability, maturity, wise and sage. Lecturer personality is an individual characteristic, which provides the ability to orient oneself and make choices in professional life conditions [21]. Assessment of the personality competence of lecturers is the average choice of respondents' answers in each statement item around 66.9%, the percentage of respondents' answers is in a good category, in accordance with the standard descriptive analysis criteria for percentages between 40.20% - 70.50% good criteria [19].

#### *3.1.4. Social Competence of Lecturers*

Social competence refers to the ability to engage in meaningful interactions with others [22]. Lecturers' social competence is the ability to communicate and get along effectively with students, fellow educators, education personnel, parents/guardians of students, and the surrounding community. The frequency distribution of lecturers' social competence obtained in the field is described in Table 4.

The average assessment of lecturers' social competence the average choice of respondents' answers in each statement item is around 54%, and the percentage of respondents' answers is in a good category, in accordance with the standard descriptive analysis criteria percentage between 40.20% - 70.50% good criteria [19].

**Table 1. Frequency distribution of lecturer pedagogical competence items**

| No. | Statement | Respondent Answer Level | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | | F | % | F | % | F | % | F | % | F | % |
| 1. | Readiness to give lectures and/or practice/practicum | 3 | 1,9 | 3 | 1,9 | 28 | 17,6 | 72 | 45,3 | 53 | 33,3 |
| 2. | Regularity and orderliness of lectures | 3 | 1,9 | 2 | 1,3 | 27 | 17,0 | 63 | 39,6 | 64 | 40,3 |
| 3. | Ability to liven up the classroom atmosphere | 2 | 1,3 | 2 | 1,3 | 32 | 20,1 | 67 | 42,1 | 56 | 35,2 |
| 4. | Clarity of the information provided and the responses provided during class | 2 | 1,3 | 1 | 0,6 | 31 | 19,5 | 65 | 40,9 | 60 | 37,7 |
| 5. | Utilization of learning media and technology | 2 | 1,3 | 1 | 0,6 | 25 | 15,7 | 61 | 38,4 | 70 | 44,0 |
| 6. | Many approaches to assessing learning objectives | 3 | 1,9 | 1 | 0,6 | 31 | 19,5 | 79 | 49,7 | 45 | 28,3 |
| 7. | Providing feedback on assignments | 2 | 1,3 | 4 | 2,5 | 27 | 17,0 | 74 | 46,5 | 52 | 32,7 |
| 8. | Exam and assignment content appropriateness in relation to the course objectives | 2 | 1,3 | 2 | 1,3 | 25 | 15,7 | 76 | 47,8 | 54 | 34,0 |
| 9. | Conformity of grades awarded to learning objectives | 2 | 1,3 | 1 | 0,6 | 21 | 13,2 | 78 | 49,1 | 57 | 35,8 |

*Source: Results of data analysis, 2022*

**Table 2. Frequency distribution of lecturers' professional competence items**

| No. | Statement | Respondent Answer Level | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | | F | % | F | % | F | % | F | % | F | % |
| 1. | Ability to explain the subject matter/topic appropriately | 2 | 1,3 | 0 | 0 | 23 | 14,5 | 84 | 52,8 | 50 | 31,4 |
| 2. | Ability to provide relevant examples of the concepts taught | 1 | 0,6 | 0 | 0 | 34 | 21,4 | 99 | 62,3 | 25 | 15,7 |
| 3. | Capacity to elucidate the connections between the subject matter being taught and other subjects | 1 | 0,6 | 0 | 0 | 35 | 22,0 | 95 | 59,7 | 28 | 17,6 |
| 4. | Explain the relevance of the field/topic taught to other fields | 1 | 0,6 | 0 | 0 | 35 | 22,0 | 99 | 62,3 | 24 | 15,1 |
| 5. | Mastery of cutting-edge issues in the field taught | 1 | 06 | 0 | 0 | 44 | 27,7 | 98 | 61,6 | 16 | 10,1 |
| 6. | Use of research results to improve the quality of lectures. | 2 | 1,3 | 3 | 1,9 | 40 | 25,2 | 86 | 54,1 | 28 | 17,6 |
| 7. | Engaging cadets in research, study, development, engineering, and/or design projects carried out by instructors | 1 | 0,6 | 2 | 1,3 | 44 | 27,7 | 87 | 54,7 | 25 | 15,7 |
| 8. | Ability to use various communication technologies | 1 | 0,6 | 1 | 0,6 | 35 | 22,0 | 93 | 58,5 | 29 | 18,2 |

*Source: Data analysis results, 2022*

**Table 3. Frequency distribution of lecturer personality competence assessment**

| No. | Statement | Respondent Answer Level | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | | F | % | F | % | F | % | F | % | F | % |
| 1. | Authority as a personal lecturer | 2 | 1,3 | 1 | 0,6 | 36 | 22,6 | 86 | 54,1 | 34 | 21,4 |
| 2. | Wisdom in making decisions | 1 | 0,6 | 0 | 0 | 34 | 21,4 | 100 | 62,9 | 24 | 15,1 |
| 3. | Set an example in attitude and behavior | 2 | 1,3 | 0 | 0 | 35 | 22,0 | 86 | 54,1 | 36 | 22,6 |
| 4. | Integrity, congruence of words and actions | 1 | 0,6 | 2 | 1,3 | 33 | 20,8 | 91 | 57,2 | 32 | 20,1 |
| 5. | The capacity to maintain self-control under differen circumstances | 1 | 0,6 | 1 | 0,6 | 38 | 23,9 | 81 | 50,9 | 38 | 23,9 |
| 6. | Fair in the treatment of cadets | 2 | 1,3 | 4 | 2,5 | 31 | 19,5 | 84 | 52,8 | 38 | 23,9 |

*Source: Analysis result, 2022*

**Table 4. Frequency distribution of lecturers' social competence items**

| No. | Statement | Respondent Answer Level | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | | 2 | | 3 | | 4 | | 5 | |
| | | F | % | F | % | F | % | F | % | F | % |
| 1. | Ability to express opinions | 2 | 1,3 | 0 | 0 | 36 | 22,6 | 86 | 54,1 | 35 | 22,0 |
| 2. | Ability to accept other people's opinions | 1 | 0,6 | 1 | 0,6 | 36 | 22,6 | 91 | 57,2 | 30 | 18,9 |
| 3. | Familiarity with the course | 2 | 1,3 | 1 | 0,6 | 40 | 25,2 | 80 | 50,3 | 36 | 22,6 |
| 4. | Easy to get along with coworkers, staff, and residents/cadets | 1 | 0,6 | 3 | 1,9 | 27 | 17,0 | 84 | 52,8 | 44 | 27,7 |
| 5. | Tolerance of diversity Cadets/residents | 2 | 1,3 | 2 | 1,3 | 22 | 13,8 | 69 | 43,4 | 64 | 40,3 |

*Source: Primary data processed, 2022*

The subvariable of developing the competency of teaching staff yields four abilities that lecturers need to possess: social, personality, professional, and pedagogical competence. The data processing findings show that the average respondent's assessment is good, meaning that the teaching staff's competency is in the good assessment category. It is still necessary to make improvements to the curriculum preparation system, semester learning plans, and syllabus to meet the demands of the maritime industry and work industry in order to enable graduates and alumni to apply the competencies they acquired while in college to their respective fields of expertise in the workplace.

### *3.2. Graduate Quality Variable*

Indicators of graduate quality can be seen in how quickly and how many graduates are employed. A total of 98 alumni respondents with graduation years 2017 - 2022. A total of 90 respondents, starting work from 2018 - 2022, can be seen in Figure 1.

### *3.3. The Effect of Increasing the Competence of Teaching Staff on the Quality of Graduates*

The quality of PIP Makassar graduates is impacted by improving the teaching staff's competency in the sub-variables of lecturer pedagogics, lecturer professional, lecturer personality, and lecturer social. The premise that the hypothesis can be accepted if the probability is less than an is used to test the hypothesis. The test results obtained a value of 0.000, and this value is smaller than the value of 0.05 or, in other words, the probability is smaller than a (probability 0.000 <0.05).

Thus, the hypothesis "there is a significant influence between increasing the competence of teaching staff on the quality of graduates at the Makassar Polytechnic of Shipping Science" can be accepted. From the results of the analysis obtained R of 0.621%, this means that 62.1% of the contribution of improving the competence of teaching staff to the quality of PIP Makassar graduates.

This gives a pattern of understanding that the pedagogic competence of lecturers, professional competence, personality of lecturers and social competence of lecturers has an influence of 62.1% on the quality of graduates at the Makassar Polytechnic of Shipping Science, while other causes explain the remaining 37.9%. While the relationship between the competencies of teaching staff on the quality of graduates is 58.1%, the magnitude of the relationship (correlation) of variable X (competence of teaching staff) to Y (quality of graduates) is 58.1%, this shows a strong level of relationship, while the magnitude of the effect of increasing lecturer competence on the quality of graduates is 0.621 or 62.1 percent. This value shows a substantial relationship can be seen in Table 5.

**Table 5. Partial regression test of teaching staff competency variables on graduate quality**

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig |
|---|---|---|---|---|---|
| | B | Std.Error | Beta | | |
| Educator competence | 16,574<br>1.053 | 6,442<br>0,059 | <br>0,621 | 2,715<br>12,019 | 0,012<br>0,000 |

*Source: Results of data analysis; 2022*

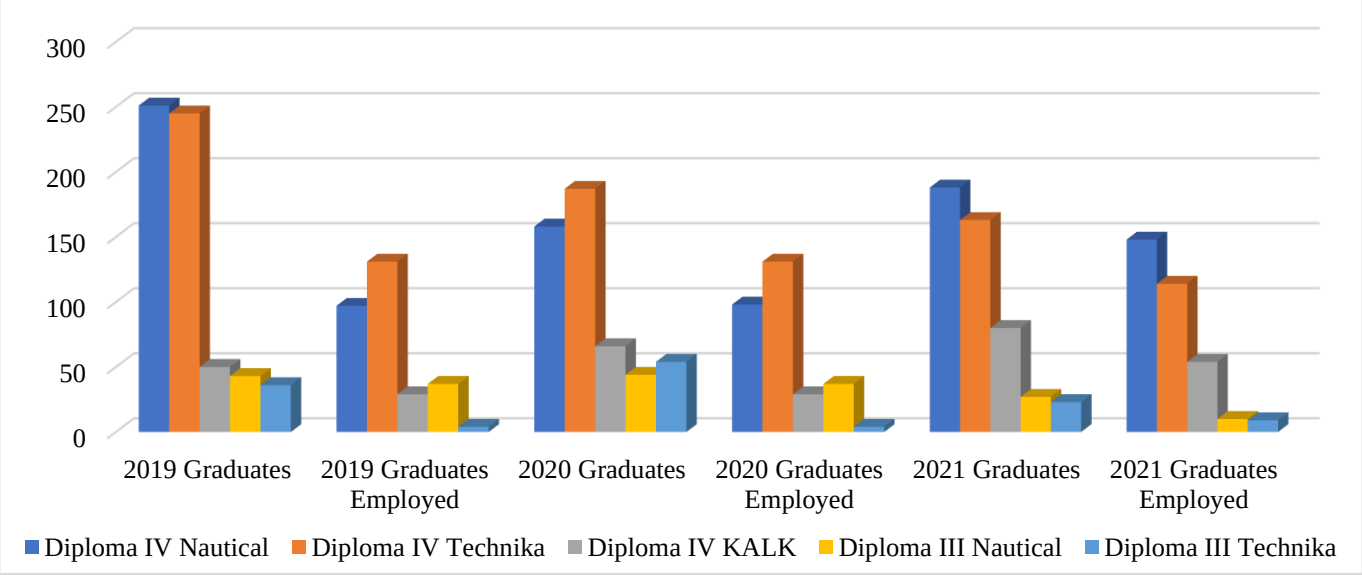


**Fig. 1 PIP Makassar graduates by year graduated and year started working**

**Table 6. Reliability testing results**

| Scale | N of Classes | Alpha | N of Items |
|---|---|---|---|
| Educator competence | 159 | 0,890 | 21 |
| Graduate quality | 159 | 0,892 | 15 |

*Source: Results of data processing processed, 2022*

### *3.4 Research Instruments*

*3.4.1. Data Validity and Reliability*

The type of validity test used is content validity in order to compare the content of the instrument with the content or design that has been determined [23]. The validity value is sought using computerization with the SPSS version 25 program. To 159 respondents with a total of 28 items. The following is a presentation of the reliability testing of each research variable:

*Data Assumption Test Results*

Normality Test Results Normality testing is based on the assumption that if the significant value is greater than α (Sig>α) then the distribution is normal [24]. For the teaching staff competency variable, a significant value of 0.628 is obtained, or in other words, Sig 0.628> α 0.01 means that the data is normally distributed. Meanwhile, for the graduate quality variable, a significant value of 0.251 is obtained or, in other words, sig 0.251> α 0.01, meaning that the data is normally distributed. Linearity testing is based on the assumption that significance is less than 0.05 (P < 0.05), then this shows a linear relationship. The results of the linearity test of the teaching staff competency variable with the graduate quality variable obtained a value of 0.000 (Sig 0.000 < α 0.05). This indicates that the teaching staff competency variable with the graduate quality variable has a linear relationship.

*Regression Test*

The simultaneous regression test is to determine whether the X variable is significant or insignificant to the dependent variable (Y) by using the SPSS 25 program. Between the teaching staff competency variables of 0.00 <0.05 so, Ha is accepted has an effect on the quality of graduates, meaning that there is a significant positive influence together between increasing the competence of teaching staff on the quality of graduates.

*Hypothesis Testing*

The hypothesis is tested using the assumption that if the probability (Sig) < α, then the hypothesis can be accepted [24]. Hypothesis testing using product moment correlation obtained a probability value (Sig) of 0.000. This value is smaller when compared to the value of α of 0.05 or in other words, the probability (Sig) is smaller than a (probability (Sig) 0.000 < α 0.05). Thus the hypothesis in this study can be accepted. Thus, the hypothesis in this study can be accepted, namely that there is an influence between the competence of teaching staff on the quality of graduates of the Makassar Polytechnic of Shipping Science.

The quality of graduates who can compete on a national and international level will significantly improve if educators' competence—which includes their pedagogic competence, professional competence, personality competence, and social competence—is improved and keeps up with scientific and technological advancements.

Therefore, raising the caliber of educators is essential to raising the caliber of graduates. The possession of professional skills and scientific competency by educators is essential for the success of any educational plan [25].

Educational institutions must also be mindful of the curricula they utilize, namely those that match the competencies graduates will need when they enter the workforce. The goal of the curriculum's appropriateness is to generate human resources that are capable of meeting the demands of the modern market and industry [26].

## 5. Conclusion and Recommendations

The significant influence between the competencies of teaching staff on the quality of graduates by 0.621 or 62.1 percent, with a significant P = 0.000 and a relationship of 0.581 or 58.1 percent. This shows that the quality of graduates is 62.1 percent due to an increase in the competence of teaching staff.

To produce quality graduates as expected, leaders should open opportunities for educators to develop themselves and provide training in accordance with the development of science and technology in the digitalization era.

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